Dow ENDURANCE™ HFDK-0587 BK S

Crosslinkable Semiconductive Shielding Compound with Superior Smoothness

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDK-0587 BK S is a crosslinkable semi-conductive compound based on an ethylene copolymer, and a select clean furnace type carbon black providing excellent smoothness compared to standard semicons.
DOW ENDURANCE HFDK-0587 BK S offers outstanding extrusion properties. Low pressure and temperature generation result in outstanding scorch resistance and excellent smoothness under a wide processing window.
Applications
DOW ENDURANCE HFDK-0587 BK S is recommended as conductor and bonded insulation shielding for high voltage XLPE power cables. DOW ENDURANCE HFDK-0587 S is especially developed for use in high voltage cables, where it provides a clean and smooth interface with the insulation XLPE.
DOW ENDURANCE HFDK-0587 BK S provides a good resistance to welding when high degassing temperatures are used.
DOW ENDURANCE HFDK-0587 BK S is preferably combined with DOW ENDURANCE™ HFDK-4201 SC, or DOW ENDURANCE™ HFDK-4300 SC insulation compounds.
For EHV applications, the use of DOW ENDURANCE™ HFDK-0801 EHV is recommended for use as conductor shielding.
Specifications
Power cables with conductor and/or insulation shielding made of DOW ENDURANCE HFDK-0587 BK S, prepared using sound, commercial fabrication practice, would be expected to meet the following cable specification(s):
IEC: 60502, 60840 and 62067
HD: 620 S1 and 632 S1
BS: 6622
DIN: VDE 0273 and 0263
Edf: HN-33-S-23 and HN-33-S-52
US: ICEA S-108-720
Consult the regulations for complete details.

General Information	
Uses	High Voltage Semiconductive Shield
	Semiconductive Shield
	Underground cable
	Cable guard
	Wire and cable applications
Agency Ratings	BS 6622
	EDF HN 33-S-23
	EDF HN 33-S-52
	HD 620 S1
	HD 632 S1
	ICEA S-108-720
	IEC 60502
	IEC 60840
	IEC 62067
	VDE 0263
	VDE 0273
Forms	Particle

Physical	Nominal Value	Unit	Test Method

Density	1.10	g/cm³	ISO 1183
Moisture Content	400	ppm	DIN 53715
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength	21.0	MPa	IEC 60811-1-1
Tensile Elongation (Break)	200	%	IEC 60811-1-1
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-10 days(150°C)	90	%	IEC 60811-1-1
Elongation retention rate-10 days(150°C)	90	%	IEC 60811-1-1
Thermoset [1]			IEC 811-2-1
Elongation with Load : 200°C	40	%	IEC 811-2-1
Elongation without Load : 200°C	0.0	%	IEC 811-2-1
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity			IEC 60093
23°C	10	ohms·cm	IEC 60093
90°C	30	ohms·cm	IEC 60093

Additional Information

Smoothness
DOW ENDURANCE HFDK-0587 BK S meets the strict standards of smoothness established for a crosslinkable semi conductive shielding compound for power cable. Throughout the production process, the product is tested to ensure smoothness. Extruded tapes are scanned by an automatic inspection system in a clean room. The tape smoothness data is managed using an acceptance sampling plan, which ensures that the material in each shipping container meets or exceeds the products smoothness standard. The DOW ENDURANCE HFDK-0587 BK S material smoothness standard has been designed to approach that offered by acetylene based supersmooth semi conductive compounds, thus meeting requirements for HV and select EHV use.

Extrusion instructions

DOW ENDURANCE HFDK-0587 BK S provides excellent surface finish and outstanding processing behavior over a broad range of conditions. For optimum results, melt extrusion temperatures in the range of 120 to 135°C are recommended. The following extruder barrel and die setting are recommended as a starting point while learning to process DOW ENDURANCE HFDK-0587 BK S. Specific machine settings will depend on the extruder and die designs and must be established through conventional practices. In general a 20/80 mesh screen pack is advised.
For Maillefer extruders, a dual flight metering screw of 20-22/1, L/D and 2.0-2.5 compression ratio, running at 8-20 rpm is recommended.
For Troester extruders, if screw cooling is not used, or is used at relatively high settings of around 105°C, Z1 and Z2 should be run somewhat cooler than indicated below. Running the screw cooling at around 85°C reduces the specific output, practical for HV use.
Recommended drying conditions are 70°C for 4 h, the target moisture level being below 500 ppm.Default temperature settings for Maillefer 20 D Extruders with normal screw:
Feed Section: 25°C
Zone 1: NXW 80°C, MPW 60°C
Zone 2: 100°C
Zone 3: 110°C
Zone 4: 110°C
Zone 5-6 Clamp: 110°C
Zone 7-8 Connection: 120°C
Head/Die: 120°C
Screw Cooling: None
Hopper Cooling: None
Default temperature settings for Troester extruders:
Feed Section: 50 to 60°C
Zone 1: 110 to 115°C
Zone 2: 115°C
Zone 3: 115°C
Zone 4: 115°C
Zone 5-6 Clamp: 115 to 120°C
Zone 7-8 Connection: 120°C
Head/Die: 120°C
Screw Cooling: 85°C
Hopper Cooling: None

NOTE	
1.	0.4 MPa

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China